

### REMARKS

Applicant thanks the Examiner for acknowledging the claim for priority and receipt of the priority document.

The Examiner (and apparently the Draftsperson) objected to the drawings for various informalities and for not including 6 figures as discussed in the specification. Further, the Examiner objected to the specification for describing Figures 5 and 6. Applicant submits herewith four sheets of Formal Drawings that have renumbered the last three sheets of figures to be Fig. 3, Fig. 4, and Fig. 5, respectively. The invention does not include a Fig. 6. The specification has been amended to reflect these changes. Therefore, Applicant respectfully submits that the Examiner's objections to the drawings and specification have been overcome.

Claims 21 – 41 have been examined. By this amendment, Applicant has amended claims 21-36, and 41 to more clearly claim the invention of the subject application. Therefore, Applicant respectfully request reconsideration and examination of presently pending claims 21-36, and 41.

The Examiner rejected claims 21-41 under 35 USC § 112, first paragraph, as failing to comply with the enablement requirement because it was unclear as to how soil enters the interior section enclosed by outer shell 12. This rejection is respectfully traversed. Applicant has amended the claims to eliminate this language. However, Applicant also notes that it is implicit in the disclosure because one skilled in the art would know how this is achieved as evidenced by the references of record including Rozendaal et al. and Rankin et al.

The Examiner rejected claims 30-35 under 35 USC § 101 as being directed to non-statutory subject matter stating that claims 30-35 are directed to a hole. This rejection is respectfully traversed. The Examiner is wrong. Claims 30 and 31 have been amended to make it more clear that the invention is directed to the reaming of dirt and the reference to a “hole” had been eliminated. Claims 32-35 have been amended to be directed to other aspects of the present invention.

The Examiner rejected claims 21-24, 26-29 and 36-41, under 35 USC § 102(e) as being anticipated by Rozendaal et al. (US Patent 6,585,062). This rejection is respectfully traversed. As mentioned above, claims 21-36, and 41 have been amended to more clearly claim the invention of the subject application. For at least the following reasons, claims 21-24, 26-29 and 36-41 are patentable over Rozendaal et al.

Rozendaal discloses a steerable directional drilling reamer, but fails to disclose, teach or suggest a reamer having a dual boring stem, independently controlled interior and exterior sections, having different speeds possible between interior and exterior sections, or having it possible for the interior and exterior sections operate in the same or opposite clockwise and counterclockwise directions, or method(s) related thereto, as is now claimed in amended claims 21-24, 26-29 and 36-41 of the present invention.

One advantage of the present invention is that the reaming apparatus may be coupled to a dual stem (rather than a single stem drilling approach) that requires no gears for driving the interior and exterior sections of the reamer device. This makes it easier and less expensive to manufacture the reamer of the present invention and provides a reamer with more versatility. For example, in an illustrative example, one advantage is that, while the speed of a conventional directional drilling machine is c. 240 rpm, the

reamer apparatus of the present invention can have the exterior or outer section (e.g., a cutter) driven clockwise at c. 240 rpm, while the interior section, e.g., an inner mixer, can be driven anticlockwise at c. 600 rpm, thereby creating a very efficient high speed blending action. Clay soils, for example, are a problem as they are very hard to mix efficiently with conventional reamer tools. However, the present apparatus according to the invention can mix heavy clay soils into a manageable malt-like slurry.

On the other hand, Rozendaal et al. discloses a drilling machine with a rotatable drill shaft 3 for connection to a drill rod 9 and a hollow wheel 17 with an excavation surface 19 driven via the drill shaft 3, sun wheel 13 and orbiting wheel 15. As such, this apparatus uses a single stem or drill shaft with a sun wheel/gear transmission system. There is no disclosure, teaching or suggestion in Rozendaal et al. of a dual-stem reamer. Therefore, Rozendaal et al. can not and does not disclose, teach or suggest a horizontal reaming/mixing apparatus including interior and exterior sections, each section having a coupling member for coupling to a respective (inner/outer) stem of a dual boring stem, so that the exterior and interior sections can be driven independently, and/or in opposite directions, and/or at different speeds, as stated in the amended claims.

Therefore, based on at least the aforementioned, the Examiner's rejection of claims 21-24, 26-29 and 36-41 under 35 USC 102(e) has been overcome.

The Examiner rejected claims 30-35, under 35 USC § 102(e) as being anticipated by, or in the alternative, under 35 USC 103(a) as obvious over Rozendaal et al. (US Patent 6,585,062). This rejection is respectfully traversed. As mentioned above, claims 30-35 have been amended to more clearly claim the invention of the subject application. For at least the following reasons, claims 30-35 are patentable over Rozendaal et al.

Claims 30-35 are dependent, either directly or indirectly, on claims 21-24, 26-29 and 36-41, and are therefore patentable over Rozendaal et al. for at least the aforementioned reasons given above with respect to claims 21-24, 26-29 and 36-41. Further, claims 32-35 have been amended and no longer are directed to forming a circular or non-circular reamed hole. In this respect, claims 32-35 now contain other limitations that are patentable over Rozendaal.

Further, Applicant respectfully objects to the Examiner's apparent use of Official Notice to conclude that the reamer of Rozendaal would form both circular and non-circular reamed holes. However, the use of Official Notice at a point of novelty is not appropriate. Therefore, Applicant respectfully requests that the Examiner come forward with another reference showing a reamer that will provide both circular and non-circular reamed holes, or withdraw the rejection of claims 30 and 31.

Therefore, based on at least the aforementioned, the Examiner's rejection of claims 30-35 under 35 USC 102(e) or 35 USC 103(a) has been overcome.

The Examiner rejected claim 25 under 35 USC § 103(a) as being unpatentable over Rozendaal et al. This rejection is respectfully traversed. Claims 25 (as well as claim 26) has been amended to more clearly claim the invention of the subject application. For at least the following reasons, claim 25 (and claim 26) is patentable over Rozendaal et al.

Claim 25 (as well as amended claim 26) is dependent on claim 24 and is therefore patentable over Rozendaal et al. for at least the reasons given above with respect to claims 21-24, 26-29 and 36-41.

Further, the Examiner once again appears to be taking Official Notice that threaded connections are well known in the art and would therefore have been used to connect the interior and exterior portions with threaded connections. The Examiner appears to have misconstrued the claim. The threading in claim 25 of the present invention couples the exterior section with an outer stem of the dual stem. This is clearly not shown, and could not be shown in Rozendaal et al. because Rozendaal et al. discloses a single stem system. In any case, the use of Official Notice at a point of novelty is not appropriate. Therefore, Applicant respectfully requests that the Examiner come forward with another reference showing a reamer that uses a threaded connection to couple an exterior section with an outer stem of a dual stem reamer, or withdraw the rejection of claim 25 (and claim 26).

Applicants respectfully submit that claims 21 – 41, all the claims now pending in the present application, are patentable over the cited and applied reference(s). Therefore, Applicant respectfully request that claims 21 – 41 be allowed and the present application be passed to issue at the earliest possible time.

Applicant hereby petitions for any extension of time which may be required to maintain the pendency of this case, and any required fee, except for the Issue Fee, for such extension is to be charged to the charge card identified in the credit card form provided with the filing of the application.

If for any reason the Examiner believes that the present application is not now in condition for allowance, the Examiner is requested to contact the undersigned at the telephone number listed below, or on my mobile telephone at 703-731-7220, to initially discuss any issues that might be of concern and, if needed, schedule an interview if the application can not be put into condition for allowance by a telephonic interview.

Respectfully submitted,



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